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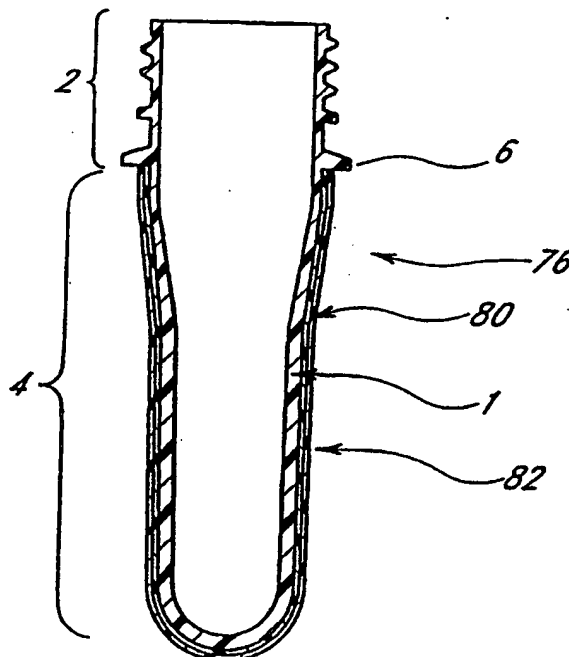
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(54) Title: BARRIER-COATED POLYESTER

(57) Abstract

This invention relates to articles made of polyester (1), preferably polyethylene terephthalate (PET), having coated directly (80, 82) to at least one of the surfaces thereof one or more layers of thermoplastic material with good gas-barrier characteristics, and novel methods of making such articles. Preferably the barrier-coated articles take the form of preforms coated by at least one layer of barrier material and the containers are preferably of the type to hold beverages such as soft drinks, beer or juice. The preferred barrier materials have a lower permeability to oxygen and carbon dioxide than PET as well as key physical properties similar to PET. The materials and methods provide that the barrier layers have good adherence to PET, even during and after the blow molding process to form containers from preforms. Preferred barrier coating materials include poly(hydroxyamino ethers). In one preferred method, preforms are injection molded then barrier-coated immediately thereafter.



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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/22026

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C08L71/00 B32B27/36 B29C49/22 B29C45/16

According to International Patent Classification (IPC) or to both national classification and IPO

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B29C C08L B32B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 689 933 A (PEPSICO INC) 3 January 1996 (1996-01-03)	1-3,5,7, 8,10,12
X	page 2, line 2-48-54 -page 3, line 6; claims 1-30	13-15, 18,19,21
A	page 9, line 43-51 -page 10, line 11-23-37	30,31
X		32-34, 36-40, 47,48
A		49-51, 53,54, 66,69, 70,73-77
A	page 7, line 32-37 -page 9, line 9-19-28	22,25-28
X	US 4 940 616 A (YATSU TADAO ET AL) 10 July 1990 (1990-07-10) column 2, line 54-64; claims 1,2	1,7,10
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/22026

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	column 4, line 36-56 -column 6, line 31; claims 1-3,7	1-3
Y	--- US 4 578 295 A (JABARIN SALEH A) 25 March 1986 (1986-03-25) cited in the application	1-3
A	claim 1; examples	32-34, 38-40,66
A	--- US 5 489 455 A (NUGENT JR RICHARD M ET AL) 6 February 1996 (1996-02-06) cited in the application column 15, line 22	73,74,76
A	--- US 4 040 233 A (VALYI EMERY I) 9 August 1977 (1977-08-09) the whole document -----	66

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 98/22026

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-77

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-77

polyester layer next to  
a thermoplastic material  
in a multilayered product.

2. Claims: 77-80

Claims 78 to 80 define an injection molding 'method for making and coating preforms'.

# INTERNATIONAL SEARCH REPORT

In nation on patent family members

International Application No

PCT/US 98/22026

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